

Ptilotus alexandri Benl sp. nov. (Amaranthaceae)

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Abstract

A description and an illustration are presented of a new species of *Ptilotus* from Western Australia. The type specimens are cited and the resemblance to other taxa is fully discussed.

Ptilotus alexandri Benl sp. nov. (Figure 1)

Descriptio. Herba annua humilis pilosa, plerumque caespites parvos pulviniformes rotundos formans, pleio- vel polystachya, spicis intense roseis ornata.

Caules—in speciminibus exstantibus usque ad 9— e radice fusiformi lignoso (as 20 cm longo) orientes, 4–14 cm longi et 0,5–1,5 mm diametro, centrales erecti, extranei (curvati) adscendentes, juveniles graciles teretiusculi, adulti superne sulcati, pallidi- vel sordidi-virides, partim cinerei, hirsuti, per totam longitudinem pilis albis dendroideis, rectanguli-patentibus, breviter articulatis, in articulis distincte verticillati-ramosis, 1–1,8 mm (ramulis pilorum ad 0,06 mm) longis vestiti, foliati, rarius usque ad inflorescentiam unicam indivisi, saepius cum 1–5 ramis lateralibus (fig. 1A) onusti vel modice corymbosi-ramosi, ramis ramulisque approximatis 1–5 cm longis, pedunculum et rachidem spicarum formantibus.

Folia integerrima, nervo medio subtus prominente, apiculata sive mucronata (mucrone conspicuo ad 1 mm longo), in statu sicco rugosa et quasi furfuracea, incani-cinerascentia, utrimque villosa (pilis sicut in caulibus, vix maioribus, postea laminae plus minusve adiacentibus), ceterum inaequalia; basalia subcoriacea spatulata, ad 15 congesta, usque ad 8:1,8 cm longa lataque, laminis in petiolulum longum (3,5 cm) superne alatum gradatim contractis, demum glabrescentia; caulina alterna 1,8–0,3 cm distantia, satis tenera et semper pilosa, inferiora angusti-spatulata et distincte petiolata, superiora erectiuscula (fig. 1A) obovata basi petioliformi, summa lanceolata subsessilia, spicas versus ad 0,4:0,2 cm decrescentia.

Spicae molles primo subhemisphaericae (1,8 cm diametro), dein conici-oblongae (2,5; 2 cm), demum (oblongi-) cylindratae ad 3,2 cm longae et 2 cm latae, terminales—singulae ad ternae caules et ramos terminantes—vel laterales pedicellatae, numquam sessiles, hoc modo in racemum subdensum cumulatae, pedicello (ramulo) 1–3 cm fere longo, plerumque folio vel foliis nonnullis praedito, colore tepalorum conspicuae. Rhachis pilis ad 1 mm longis densissime induta.

Flores 30 ad 70 collecti, bracteis duplo fere longiores, apicibus lucidis tepalorum exteriorum spectabiles.

Bracteae bracteolaeque scariosae integerrimae, apice acuminatae, in parte ima spicae post lapsum perianthii superstites, inaequales: *Bractea* (fig. 1B) ovati-lanceolata, 5–6 mm longa et 1,8–2 mm lata, rigidula, impellucida, fuscescens, apice sensim in mucronem fuscum (0,8 mm) producto, dorso omnino haud densissime piloso, pilis denticulati-nodosis ad 2 mm (denticulis 0,02–0,025 mm) longis, apicem haud attingentibus. *Bracteolae* (fig. 1C) vix longiores sed latiores (2,5 mm), oblongi-ovatae, concavae, tenues membranacei-diaphanae, incoloratae, nitentes, primo carinatae perianthio arcte adpressae, nervo medio in mucronem distinctum notabilem (1 mm) dilute fuscum egrediente, pubescentia ad partem medianam restricta, pilis rectis e carina orientibus.

Perianthium gracile primo erectum postea aliquanto aperiens, ad imam basim constrictam induratum, tubum turbinatum circiter 0,7 mm longum, extus pilis minutis (0,2–0,6 mm) hirsutum formans. *Tepala* elongati-lineararia, ecarinata, trinervia—nervis lateralibus superne indistinctis—, in lateribus integerrima, haud limbata, primo violacei- (vel purpurei-) rosea, deinde pallescentia; extus inaequaliter pilis niveis, breviter verticillati-articulatis sicut in bracteis, at longioribus (ad 5 mm), stricti-erectis dein patentibus obsessa, inferne (supra tubum, circiter 1 mm) et superne (sub apicem, 1–2 mm) haud obsessa. inaequiformia: 2 extima (fig. 1D) ad 9: 3,3–0,6 mm longa lataque, in apice regulariter serrulati-denticulata, dente medio conspicue elongato, marginibus sub apicem non multum involutis, extus tantum pilis apicem haud aequantibus munita, intus glabra. 3 interioribus (fig. 1E) minora, 7–8 mm longa et 0,25–0,4 mm lata, apicem haud serrulatum versus visu acuminata, marginibus superne involutis, pilis dorsalibus apicem paulum excedentibus, intus supra tubum pilis haud copiosis crispis et parce intricatis, remotius et indistincte modulosis, ad 2 mm longis, uno seu rarius ambobus lateribus tepali orientibus et partim introflexis obsessa.

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Unum tantum *stamen* fertile (fig. 1F, G), 4 *staminodia*; omnia basim versus gradatim vel rarius plus minusve abrupte ad 0,2-0,35 mm dilatata et coalita in cupulam membranaceam, glabram, integerrimam, circiter 0,8 mm altam, tubo perianthii adnatam, anulo libero minimo (0,1-0,13 mm); pseudostaminodia interiecta nulla. *Filamenta* glabra inferne vittata, superne subulati-filiformia, longitudine differentia (fig. 1G): fertile 2,1-2,3 mm, sterilia breviora 1,4-1,7 mm longa. *Antherae* flavae subrotundae (circiter 2:1,5 mm), basi bilobae.

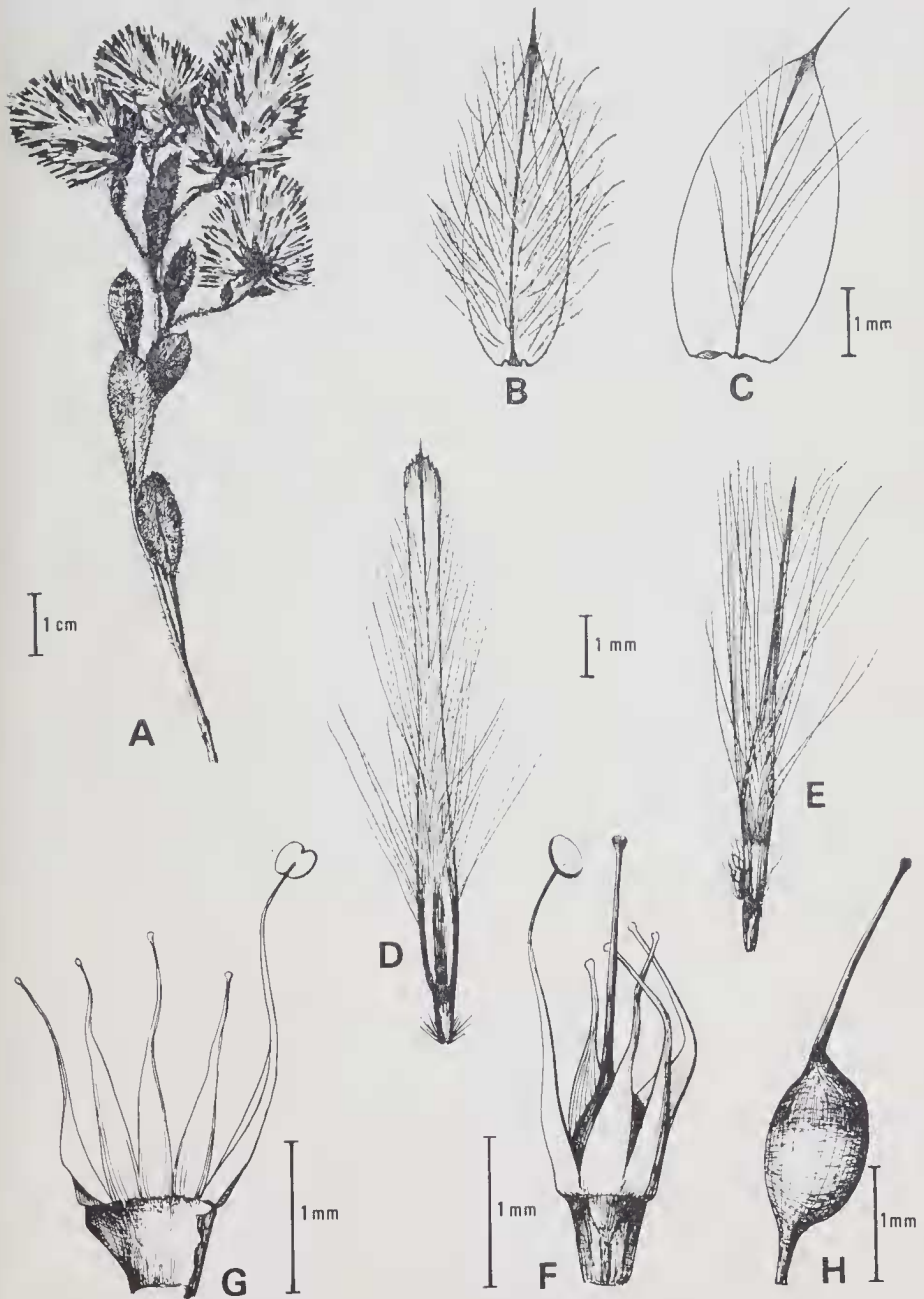


Figure 1—*Pilotus alexandri* Benl. A—Terminal portion of plant (A. S. George no. 10152). B—Bract, outer face. C—Bracteole, outer face. D—Outer tepal, outer view. E—Inner tepal, inner view. F—Androecium and gynoecium. G—Staminal cup, opened. H—Pistil.

Ovarium subclavatum (fig. 1H) lateraliter plus minusve compressum, primo manifesto dein minus distincte stipitatum, ad 2 mm longum (stipite 0,4–0,5 mm longo incluso) et 0,8 mm latum. *Stylus* excentricus subrectus gracilis 1,7–2 mm longus, inferne 0,08 mm, superne 0,04 mm diametro, sicut ovarium glaberrimus. *Stigma* capitellatum papillosum.

Typification. Holotype of species: 6 miles north of Quobba Homestead, north of Carnarvon, W.A. (113° 24' E, 24° 19' S); *A. S. George* no. 10152, 3 Sept. 1970. ("Annual herb. Flowers deep pink. In sand, on *Triodia* steppe.")—PERTH

Isotypes: PERTH, AD, BM, CANB, K, M

Paratypes: near Notch Point, Dirk Hartog Island, W.A. (113° 10' E, 25° 57' S); *A. S. George* no. 11603, 7 Sept. 1972. ("Ephemeral herb; flowers pink.")—PERTH, M

Habitat. Apparently confined to sandy soils. Associated frequent species in type locality recorded by Mr. A. S. George (letter of 31.V.1973): *Triodia pungens*, *Acacia ligulata*, *Banksia ashbyi*, *Dampiera incana*, *Thryptomene baeckeacea*. "The vegetation was mostly less than 1 m high and very open."—On Dirk Hartog Island: "It appeared to be rare and was growing also on a sandy steppe. The associated dominant plants were *Plectrachne* sp., and *Acacia ligulata*" (A. S. George, 31.V.1973).

Material. The description is drawn up from the holotype, a sheet containing three complete plants, a big one branching at base with 8 stems carrying more than two dozen mature spikes, and two smaller ones with 8 developed inflorescences each. In addition five copiously flowering specimens have been made available which shall be treated as isotypes. Later the considerably scantier plants (3 samples with one, two and five spikes, respectively) from Mr. George's second discovery were sent to us for investigation through the courtesy of Mr. Robert D. Royce. Thus our studies were based on a total of 11 specimens.

Discussion

The depressed cushion-like habitat of the readily branched small plants forming patches (in the type locality only) points to a growth under rather dry conditions. Most *Ptilotus* taxa living in those sandy localities are perennials, real undershrubs or bush-like forms with stems woody at their base. Among the herbaceous species behaving as an annual just a few might be taken into consideration for a faint resemblance to our new western taxon, i.e. plants with erect main stems of a similar spreading habit, conspicuously hairy both in their vegetative parts and in outer floral organs (more or less woolly inside the inner tepals, too), and with pedunculate inflorescences of less than about 2.5 cm in diameter:

(a) *Pt. helipteroides* (F. v. Muell.) F. v. Muell. (W.A., S.A., N.T.) in its varieties *helipteroides* and *minor* (J. M. Black) Eichler ex Benl, shows (indistinctly) articulate hairs in stems and leaves as well as in perianth-segments, and a flower-colour like that of *alexandri* at anthesis; however the ovary is villous, the style central, and stems may sometimes reach a height of more than half a metre (in var. *helipteroides*), not forming cushions.

(b) *Pt. pseudohelipteroides* Benl (in *Muelleria* 1:105, 1959) known from Queensland only, exhibits some resemblance to the preceding species (var. *helipteroides*) in general appearance, except for flower-colour. Both taxa produce pseudostaminodia, in contrast to *Pt. alexandri*.

(c) *Pt. leucocoma* (Moq.) F. v. Muell. (S.A., Qld., N.S.W., N.T.) is usually slightly branched and rather slender, the scattered pubescence of the stem and leaves soon being restricted to leaf-axils and different in type from the floral indumentum: the articulate hairs being more or less crispy in vegetative parts, rigid (nodose or minutely denticulate-nodose) in tepals, as is the case in nos.

(a) and (b). None of the three taxa presents dendroid, i.e. distinctly verticillate hairs, anywhere. Furthermore their bracts are completely glabrous. They, therefore, do not approach our plant in question.

(d) *Pt. eichleramus* Benth (in Mitt. Bot. München 7:310, 1970) from South Australia, is of about the same height as the new taxon, and has distinctly verticillate hairs in the robust and often reddish-tinged vegetative parts, yet soon becoming glabrous. The spikes usually become broader, and the deeper brown-coloured bracts stand out against more shining pink flowers, especially in young inflorescences, the latter being markedly less crowded than in *alexandri* as a rule.

In many cases the inner tepals of *Ptilotus* flowers are not only smaller but look far more acute than the outer ones, mostly owing to the margins being tightly incurved towards the apex. But there are only a few species [e.g. *Pt. spathulatus* (R. Br.) Poiret] with such a striking and noteworthy difference between the perianth-segments as in the new form (fig. 1D, E).

As a matter of fact the 5-merous androecium in the genus shows a high degree of variation, not least with regard to the number of stamens often reduced to staminodes. From a total of nearly 80 species about 20 seem to have all their stamens fertile though not always equally shaped; others vary in number of staminodes from zero to one, zero to two, one to two, one to three, one to four, two to three, and three to four. There are only a few representatives with constantly two staminodes (e.g. *Pt. symonii* Benth), as far as we know; at least half a dozen species always produce two fertile stamens (e.g. *Pt. lazaridis* Benth). In *Pt. alexandri* merely one stamen was found fertile. The excellent and rich material comprising more than 130 spikes admitted a careful examination enabling us to state with convincing evidence the presence of four abortive stamens as a constant and significant feature, hitherto unobserved in any previously described taxon of the genus and very helpful for identification.

At first sight our novelty is readily distinguished by its distinctive appearance and vestiture. A closer examination reveals the peculiar morphologic difference between outer and inner tepals and the single fertile stamen unique in the genus. The new taxon, which differs most obviously from any other *Ptilotus*, thus requires special recognition.

Name. The specific epithet is bestowed in honour of Mr. Alexander S. George, the discoverer of this plant, in recognition of his contributions to the flora of Western Australia, both by collecting trips and by publications.